CONTENTS OF VOLUME 17

Volume 17, No. 1, 1985

Editorial—Elsworth R. Buskirk 1

Directions—1985

Control of hepatic glucose production during exercise
William W. Winder 2

Anaerobic threshold: review of the concept and directions for future research
James A. Davis 6

Response to Davis' manuscript
George A. Brooks 19

Anaerobic threshold: review of the concept and directions for future research
George A. Brooks 22

Response to Brooks' manuscript
James A. Davis 32

Developmental regulation of motor function: an uncharted sea
Michael J. O'Donovan 35

Synthesis, experimentation, and the biomechanics of economical movement
E.C. Frederick 44

Exchange Review

Current concepts in the diagnosis and treatment of hand and wrist injuries in sports
John F. Mosher 48

Brief Review

Athletic amenorrhea: a review
Anne B. Loucks and Steven B. Horvath 56

Symposium

Endorphins in exercise
John R. Sutton 73

Endorphins: What are they? How are they measured? What is their role in exercise?
Ashley Grossman and John R. Sutton 74

Endorphins and exercise in females: possible connection with reproductive dysfunction
Janet W. McArthur 82

Exercise and endorphins—male responses
Peter A. Farrell 89

Affective beneficence of vigorous physical activity
William P. Morgan 94

Endorphins: opiates for the masses
Ashley Grossman 101

Original Investigations

Alterations in breast morphology consequent to a 21-day bust developer program
Jack H. Wilmore, Anne E. Atwater, Bess D. Maxwell, Dorothy H. Wilmore, Stefan H. Constable, and Michael J. Buono 106

Effects of aerobic training on fat distribution in male subjects
J.P. Després, C. Bouchard, A. Tremblay, R. Savard, and M. Marcotte 113

Increase of free and total testosterone during submaximal exercise in normal males
Robert B. Vogel, Cindy A. Books, Catherine Ketchum, Christian W. Zauner, and Frederick T. Murrary 119

Validity of "generalized" equations for body composition analysis in male athletes
Wayne E. Sinning, Dennis G. Dolny, Kathleen D. Little, Lee N. Cunningham, Annette Racaniello, and Steven F. Siconolfi 124

Metabolic and cinematographic analysis of walking and running in men and women
Yagesh Bhambhani and Mohan Singh 131

Responses of pre- and post-menopausal females to aerobic conditioning
Mary M. Cowan and Larry W. Gregory 138

Influence of sex differences and knee joint position on electrical stimulation-modulated strength increases
Thomas D. Fahey, Michael Harvey, Richard V. Schroeder, and Frank Ferguson 144

Mechanical energy changes during treadmill running
Shinji Sakurai and Mitsumasa Miyashita 148

Plasma volume and protein content in progressive exercise: influence of cyclooxygenase inhibitors
James Pivarnik, Thomas Kayrouz, and Leo C. Senay, Jr. 153

Effects of shoes and foot orthotics on $\dot{V}O_2$ and selected frontal plane knee kinematics
Lee N. Burkett, Wendy M. Kohrt, and Richard Buchbinder 158

Maximal ventilation after exhausting exercise
Paul R. Bender and Bruce J. Martin 164

Evaluation of acute cardiorespiratory responses to hydraulic resistance exercise
Frank I. Katch, Patty S. Freedson, and Carole A. Jones 168

Failure of caffeine to affect substrate utilization during prolonged running
David C. Casal and Arthur S. Leon 174

Information for Authors i

Policy Statement Regarding the Use of Human Subjects and Informed Consent v

Volume 17, No. 3, 1985

Exchange Review

Epidemiology, pathomechanics, and prevention of athletic injuries to the cervical spine
Joseph S. Torg 295

Symposium

The efficiency of human movement—a statement of the problem
Peter R. Cavanagh and Rodger Kram 304

Psychogenic factors and exercise metabolism: a review
William P. Morgan 309

The relationship between mechanical and physiological energy estimates
Keith R. Williams 317

Mechanical and muscular factors affecting the efficiency of human movement
Peter R. Cavanagh and Rodger Kram 326

A physiologist's view of running economy
Jack T. Daniels 332

Original Investigations

Metabolic characteristics of skeletal muscle during detraining from competitive swimming
David L. Costill, W.J. Fink, M. Hargreaves, D. S. King, and R. Thomas 339

A comparison between free-weight and isokinetic bench pressing
Jeffrey E. Lander, Barry T. Bates, James A. Sawhill, and Joseph Hamill 344

Response of serum hormones to androgen administration in power athletes
Markku Alén, Matti Reinila, and Reijo Vihko 354

Effect of fructose injection on muscle glycogen usage during exercise
M. Hargreaves, David L. Costill, A. Katz, and W. J. Fink 360

Physiological response to a 20-mile run under three fluid replacement treatments
Christine L. Wells, Teresa A. Schrader, Joel R. Stern, and Gary S. Krahenbuhl 364

Water intoxication: a possible complication during endurance exercise
Timothy D. Noakes, Neil Goodwin, Brian L. Raynor, and Robert K.N. Taylor 370

Maintenance of hamstring strength following knee surgery
Joseph J. Vegso, Susan E. Genuario, and Joseph S. Torg 376

Unaltered aerobic power and endurance following glucocorticoid-induced muscle atrophy
Judith A. Capaccio, Thomas M. Galassi, and Robert C. Hickson 380

Endurance exercise modifies cachexia of tumor growth in rats
Patricia A. Deuster, Seoras D. Morrison, and Richard A. Ahrens 385

Effects of chronic B-adrenergic blockade on hemodynamic and metabolic responses to endurance training
Michael R. Lawlor, D. Paul Thomas, John J. Michele, Rita A. Carey, Albert M. Paolone, and Alfred A. Bove .. 393

Special Feature

Arlie V. Bock, pioneer in sports medicine
Bruce D. Dill 401

Book Review

Physiological chemistry of training and detraining
Robert S. Mazzeo 405

Information for Authors i

Policy Statement Regarding the Use of Human Subjects and Informed Consent v

Volume 17, No. 4, 1985

Original Investigations

Exercise during pregnancy: maternal and fetal responses. A brief review
Jan Gorski 407

Cross-sectional thigh components: computerized tomographic assessment
Gail Hudash, John P. Albright, Edward McAuley, Robert K. Martin, and Michael Fulton 417

The instantaneous torque-angular velocity relation in plantar flexion during jumping
G.J. van Ingen Schenau, M.F. Bobbert, P.A. Huijing, and R.D. Woittiez 422

Mechanical and physiological responses to lower extremity loading during running
Philip E. Martin 427

Knee joint in soccer players: osteoarthritis and axis deviation
Alex Chantraine 434

Effect of attempted lifting speed on forces and torque exerted on the lumbar spine
Susan J. Hall 440

Dynamic and static stretch responses in muscle spindle receptors in fatigued muscle
Daniel L. Nelson and Robert S. Hutton 445

Parasympathetic control of resting heart rate: relationship to aerobic power
W. Larry Kenney 451

Influence of diuretic-induced dehydration on competitive running performance
Lawrence E. Armstrong, David L. Costill, and William J. Fink 456

Androgens reduce HDL_2-cholesterol and increase hepatic triglyceride lipase activity
Mark A. Kantor, Adam Bianchini, David Bernier, Stanley P. Sady, and Paul D. Thompson 462

Effects of dieting and exercise on lean body mass, oxygen uptake, and strength
Konstantin N. Pavlou, William P. Steffee, Robert H. Lerman, and Belton A. Burrows 466

Effect of carbohydrate feeding frequencies and dosage on muscle glycogen use during exercise
R.A. Fielding, D.L. Costill, W.J. Fink, D.S. King, and M. Hargreaves 472

Aerobic requirements of overground versus treadmill running
David R. Bassett, Jr., Michael D. Giese, Francis J. Nagel, Ann Ward, and Diane M. Raab 477

Aerobic/calisthenic and aerobic/circuit weight training programs for Navy men: a comparative study
Edward J. Marcinik, James A. Hodgdon, Karen Mittleman, and James J. O'Brien 482

Letters to the Editor-in-Chief

Movements and the flow of lymph
J. R. Casley-Smith 488

Letter
Gordon E. Robertson and Walter O. Martindale 489

Response
Will Nelson and Carol Widule 490

Book Review

Children and Sport: Pediatric Work Physiology
Donald H. Paterson 491

American College of Sports Medicine: Additional Abstracts from the 1985 Annual Meeting 492

Information for Authors i

Policy Statement Regarding the Use of Human Subjects and Informed Consent v

Volume 17, No. 5, 1985

Brief Review

Aerobic response to endurance training in prepubescent children: a critical analysis
Thomas W. Rowland 493

Review

Circadian rhythms and athletic performance
Charles M. Winget, Charles W. deRoshia, and Daniel C. Holley 498

Symposium

Effects of strenuous exercise on myocardial blood flow
Alfred A. Bove 517

Effects of chronic exercise on biochemical and functional properties of the heart
K.M. Baldwin 522

Regulation of myocardial contractility in exhaustive exercise
Glen F. Tibbits 529

Energetics of myocardial function
Paul A. Molé and Richard L. Coulson 538

Effects of acute and chronic exercise on myocardial ultrastructure
D. Paul Thomas 546

Original Investigations

Kinematics and kinetics of the dead lift in adolescent power lifters
Eugene W. Brown and Kaveh Abani 554

Serum lipoproteins of the Zucker rat in response to an endurance running program
J. Larry Durstine, Kenji A. Kenno, and Raymond A. Shepherd 567

Responses of endurance-trained subjects to caloric deficits induced by diet or exercise
Robert G. McMurray, Victor Ben-Ezra, William A. Forsythe, and Ann T. Smith 574

Sleep deprivation, physical fatigue, and the perception of exercise intensity
William S. Myles 580

Effects of physical fitness on expiratory airflow in exercising asthmatic people
Francois Haas, Horacio Pineda, Kenneth Axen, David Gaudino, and Albert Haas 585

Acetazolamide and exercise in sojourners to 6,300 meters—a preliminary study
Peter H. Hackett, Robert B. Schoene, Robert M. Winslow, Richard M. Peters, Jr., and John B. West 593

On the concept of the center of percussion
James G. Andrews 598

Exercise-induced angina in the cold
Catherine F. Brown and Neil B. Oldridge 607

Lumbar spine loading during half squat exericises
Aurelio Cappozzo, Francesco Felici, Francesco Figura, and Fabio Gazzani 613

Letter to the Editor-in-Chief

Letter to the Editor-in-Chief
Howard J. Green and Richard L. Hughson 621

Response
James A. Davis 622

Volume 17, No. 6, 1985

Original Investigations

Velocity, stroke rate, and distance per stroke during elite swimming competition
Albert B. Craig, Jr., Patricia L. Skehan, James A. Pawelczyk, and William L. Boomer 625

A comparison of one-legged and two-legged countermovement jumps
A.J. van Soest, M.E. Roebroeck, M.F. Bobbert, P.A. Huijing, and G.J. van Ingen Schenau 635

The oxygen requirement for horizontal and grade walking on a motor-driven treadmill
Henry J. Montoye, Thomas Ayen, and Francis Nagle 640

Quadriceps strengthening with the DAPRE technique: case studies with neurological implications
Kenneth L. Knight 646

Assessment of physical activity in inactive populations
Stephen R. Dearwater, Ronald E. LaPorte, Jane A. Cauley, and Gilbert Brenes 651

Physiological training effects of playing youth soccer
Kris E. Berg, Joseph C. LaVoie, and Richard W. Latin 656

Cost-effective selection of fire fighter recruits
L. Brownlie, S. Brown, S. Diewert, P. Good, and G. Holman 661

Determinants of the training response in elderly men
S.G. Thomas, D.A. Cunningham, P.A. Rechnitzer, A.P. Dooner, and J.H. Howard 667

Fat utilization enhanced by exercise in a cold environment
Barbara A. Timmons, John Araujo, and Tom R. Thomas 673

Creatine kinase isoenzyme activities in men and women following a marathon race
Marc A. Rogers, G. Alan Stull, and Fred S. Apple 679

Plasma norepinephrine, epinephrine, and dopamine β-hydroxylase activity during exercise in man
François Peronnet, Jean Cleroux, Hélène Perrault, Guy Thibault, and Daniel Cousineau 683

Influence of caffeine on the resting metabolic rate of exercise-trained and inactive subjects
Eric C. Poehlman, Jean-Pierre Despres, Henri Bessette, Elisabeth Fontaine, and Angelo Tremblay 689

Left ventricular hypertrophy in athletes: an exercise-echocardiographic study
Jerald L. Cohen and Karen R. Segal 695

Left Ventricular size and function in bodybuilders using anabolic steroids
Richard C. Salke, Thomas W. Rowland, and Edmund J. Burke 701

Carotid palpation at two exercise intensities
Tommy Boone, Karen L. Frentz, and Neal R. Boyd 705

Effect of local cold application on intramuscular blood flow at rest and after running
Ola Thorsson, Bo Lilja, Lars Ahlgren, Bengt Hemdal, and Nils Westlin 710